



**Frontier – Chile**

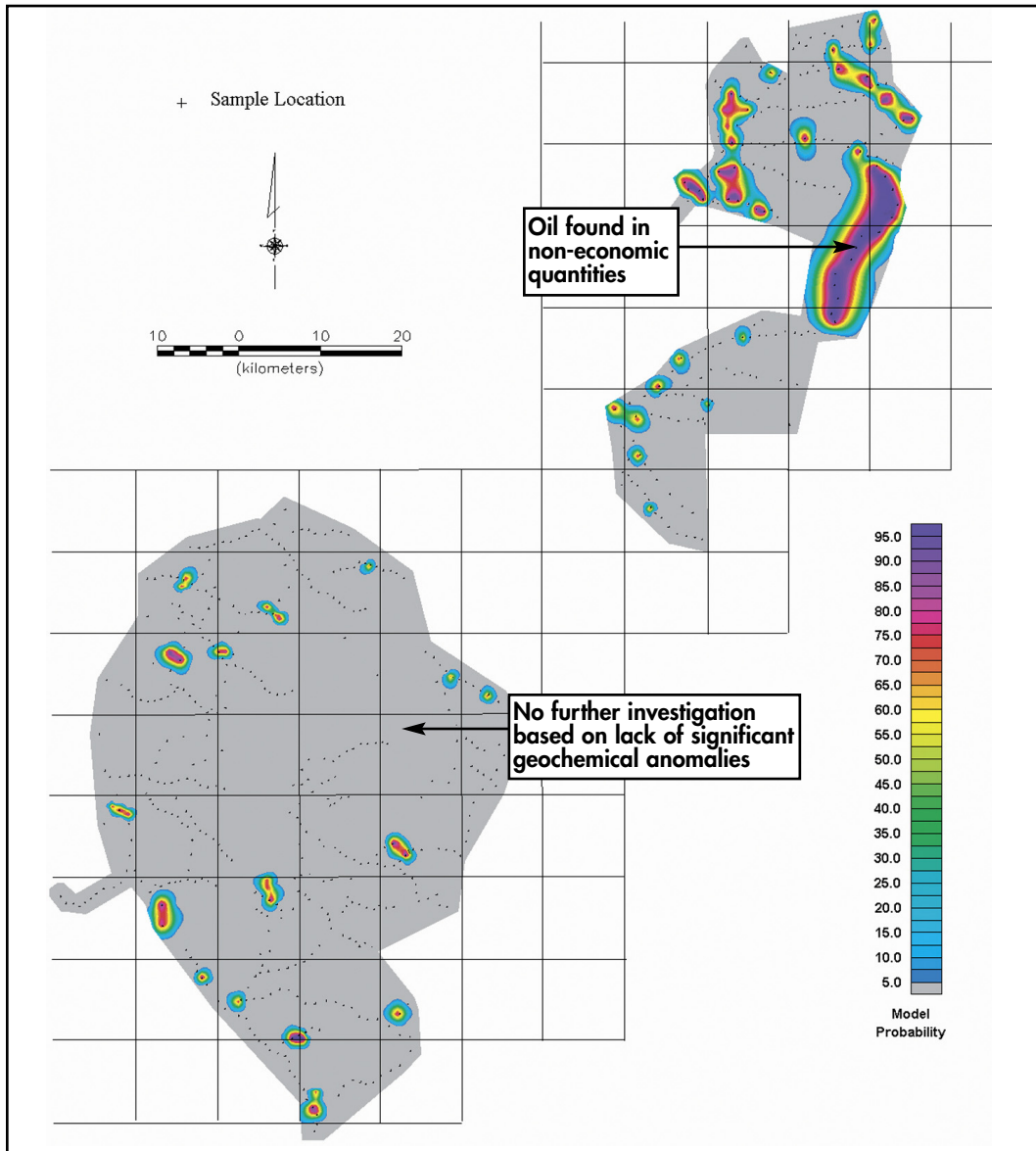


Figure 1: Surface geochemical anomaly map, showing a large positive geochemical anomaly in the northern half of the survey area (purple areas) as high probability zones.

**Survey Summary**

- 1,000 sample collectors installed
- Sample spacing 1,000 m along roads, trails and railroad tracks
- 80% of seismic budget saved
- Drilling program reduced significantly
- Oil found in geochemical positive after wildcat drilling

**Introduction**

No geological information was available at the time of the survey. The potential for encountering hydrocarbon-bearing zones was unknown. The main objective of the survey was to locate and evaluate the potential of finding hydrocarbons indicative of deeper fossil fuel deposits, and therefore, focus further exploration efforts.

### Surface Geochemical Survey

A total of 1,000 sample collectors were installed in the frontier area. Access to the region was difficult; therefore, the collectors were placed along existing roads, trails, and railroad tracks. The collectors were spaced approximately one kilometer apart along each transect. The collectors were analyzed and geochemical signatures were developed for each sample location. Geochemical modeling was completed and the data were represented in terms of probabilities which were contoured (Figure 1).

### Survey Results

Several positive geochemical anomalies were observed in the northern half of the area sampled. The southern half of the surveyed area was largely devoid of any significant positive geochemical anomalies. As a result of this information, the seismic program was optimized. The seismic program in the southern region was abandoned altogether. In the northern region, seismic activities were focused on the locations most likely to produce oil. Wildcat well drilling in one positive anomaly in the northern region encountered oil in non-economic quantities, but was still considered a surface geochemical success – the accurately predicted the presence of hydrocarbons at depth. The seismic program and potential drilling costs were reduced significantly as a result of the surface geochemical survey.

**GORE™ SURVEYS** REDUCE RISK – IMPROVE SUCCESS.

For more information on reducing risk and improving success with GORE™ Surveys, see Potter, R. W. II et al., Significance of Geochemical Anomalies in Hydrocarbon Exploration: One Company's Experience, 1996, AAPG Memoir 66, P 431 - 439.



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